



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/976,167	10/12/2001	Frederick Paul Benning	ROC920010111US1	1982
7590	03/21/2007		EXAMINER	
James R. Nock IBM Corporation 3605 Highway 52 North Rochester, MN 55901-7829			AHMED, SHAMIM	
			ART UNIT	PAPER NUMBER
			1765	
SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE		
2 MONTHS	03/21/2007	PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents  
United States Patent and Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

MAILED  
MAR 21 2007  
GROUP 1700

**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 09/976,167

Filing Date: October 12, 2001

Appellant(s): BENNING ET AL.

---

Matthew J. Bussan  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 12/27/06 appealing from the Office action  
mailed 10/17/06.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The following are the related appeals, interferences, and judicial proceedings known to the examiner, which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal:

Serial No. 11/008,806.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

Art Unit: 1765

5,723,181	ROBERTS	3-1998
6,268,979	KURODA	7-2001
6,083,838	BURTON et al.	7-2000

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claims 41-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartog et al (6,236,542) in view of Roberts (5,723,181).

Hartog et al disclose a cleaning polish etch composition comprises a carrying fluid such acid, neutral or base solution and metal etchant such as aluminum nitrate or cerium sulfate, which resemble as the claimed metal etchant or any other etchant depending on the substrate for etching the substrate and/or the attached slurry particles (col.4, lines 19-28, col.5, lines 60-col.6, lines 17).

Hartog et al teach that the substrate is a silicate based glass disk (col.4, lines 12-25).

As to claims 43-44, Hartog et al teach that the pH of the composition could be above 3.0, which reads on claimed pH equal to less than 7 (col.5, lines 40-43).

Hartog et al fail to teach the introduction of specific surfactant having hydrophobic section that forms a steric hindrance barrier between the substrate and the colloidal particles (claim 41), wherein the surfactant is sodium octyl sulfate in the composition (claim 42).

However, Roberts teaches that surfactant such as sodium octyl sulfate is used in a colloidal silica composition for changing the surface chemistry and resulted surface is more susceptible to the surface processing (col.1, lines 49-60 and col.2, lines 46-53).

Therefore, it would have been obvious to one of ordinary skilled in the art at the time of claimed invention to combine Roberts's teaching into Hartog et al's composition for enhancing the polishing of the surface by changing the surface chemistry as taught by Roberts.

It is noted that the combined teaching of Hartog et al's surfactant is precipitated onto the surface and creating the steric hindrance as claimed because the surfactant is exactly same as the instant invention and expected to have the same property as the claimed one such as the surfactant is precipitated onto the surfaces.

Claims 45-50 are rejected under 35 U.S.C. 103(a) as being unpatentable Hartog et al (6,236,542) in view of Kuroda (6,268,979) and further in view of Burton et al (6,083,838).

Hartog et al discuss above and also al teach that the colloidal particles have a size in the range of 0.001-1  $\mu\text{m}$  (1-1000nm) that falls within the claimed range of 2-200 nm (col.6, lines 25-29).

Hartog et al remain silent that the glass substrate is aluminosilicate glass.

However, Kuroda illustrates that glass substrate, preferable aluminum silicate glass is used for magnetic data storage device, which glass is weather resistant (col.3, lines 20-44).

Art Unit: 1765

Therefore, it would have been obvious to one of ordinary skilled in the art at the time of claimed invention to modify Hartog et al's glass substrate with Kuroda's teaching for producing a storage device with weather friendly as taught by Kuroda.

Modified Hartog et al fail to teach the use of claimed surfactant such as an ethylene oxide propylene oxide block polymer.

However, Burton et al disclose a CMP slurry composition containing abrasive and a surfactant is used to increase the polishing capability by increasing the viscosity of the slurry, wherein the surfactant is propylene oxide-ethylene oxide block copolymer (col.3, lines 62-65 and col.4, line 64-col.5, line 9).

Therefore, it would have been obvious to one of ordinary skilled in the art at the time of claimed invention to combine Burton et al's teaching into modified Hartog et al's teaching for increasing the polishing efficiency by introducing the improved surfactant as taught by Burton et al.

#### **(10) Response to Argument**

Appellant argues that Robert does not cure the deficiency of Hartog, namely does not suggest that the surfactant is precipitated on a surface as claimed because Robert reference illustrates that the surfactant (sodium octyl sulfate) is used to form a hydrophilizing composition.

In response to the argument, examiner states that the argument is not persuasive because Robert reference is applied to show the use of anionic surfactant including hydrophobic section and Robert's surfactant such as sodium octyl sulfate has a

hydrophobic section as it is exactly same as the instant invention and expected to have similar effect even though Robert uses the same surfactant for different purposes.

Additionally, the fact that appellant uses the surfactant for a different purpose does not alter the conclusion that its use in prior art would be *prima facie* obvious from the purpose disclosed in the reference. *In re Lintner*, 173 USPQ 560.

Therefore, Robert's surfactant has the same capability as the instant invention and one of ordinary skilled in the art would have been motivated to employ Robert's teaching as suggested in the office action.

As to claims 45-50, Appellant argues that Hartog's can not reasonably teach the use of the claimed specified nominal size of colloidal particles (i.e., 2-200 nm in claim 45 and 70-200 nm in claim 50) falling within it's broad teaching of the range of 1-1000 nm.

In response to the argument, examiner states that the argument is not persuasive because in the absence of unexpected results, Hartog's teaching of the colloidal particles size in the range of 1-1000 nm broadly encompasses or overlaps the claimed specific range of 2-200 nm and 70-200 nm, in general, where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). See MPEP 2144.05.

As to Burton reference, Appellant argues that the surfactant (ethylene oxide propylene oxide block copolymer) used in a metal CMP slurry to inhibit oxide erosion of metal stacks on a semiconductor wafer and this would not be advantageous in the

Art Unit: 1765

Hartog's super polishing for disk substrate surfaces, which have no metal to be destroyed or damaged by oxide erosion.

In response to the argument, examiner states that the argument is not persuasive because Hartog illustrates that the disks to be supper polished are typically include metal coating such as aluminum with magnetic material, such as cobalt alloys (see col.1, lines 21-24 of Hartog reference).

Therefore, one of ordinary skilled in the art would have been motivated to introduce Burton et al's surfactant into Hartog's polishing composition for inhibiting metal erosion discussed in the rejection.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

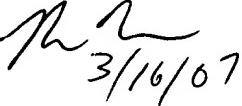
For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Primary Examiner  
Shamim Ahmed  
AU 1765

  
3/15/07

Conferees:

Nadine Norton   
3/16/07  
SPE 1765

Kathryn Gorgos   
TQAS